

REMARKS

Claims 15-34, 53, 54, 57-61, and 74 are pending in the application. In the Office Action dated April 30, 2007, the Examiner rejected claims 57, 58, 60, 61, and 74 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,950,220 (“Abramson”); rejected claims 15, 16, and 53 under 35 U.S.C. §103(a) as being unpatentable over Abramson in view of U.S. Patent No. 6,301, 038 (“Fitzmaurice”); rejected claims 17-19, 21, 54, and 59 under 35 U.S.C. §103(a) as being unpatentable over Abramson in view of Fitzmaurice and further in view of U.S. Patent No. 4,611,890 (“Elliot”); and rejected claim 27 under 35 U.S.C. §103(a) as being unpatentable over Abramson in view of Fitzmaurice, further in view of Elliot, and still further in view of U.S. Patent No. 3,963,314 (“Yamashita”). The Examiner objected to claims 20, 22-26, and 28-34 as depending upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant’s representative respectfully traverses the rejection of the claims 57, 58, 60, 61, and 74 under 35 U.S.C. §102(b) and the rejections of the claims 15-19, 21, 27, 53, 54, and 59 under 35 U.S.C. §103(a).

***Response to Rejection under 35 U.S.C. §102(b)***

Applicant’s representative asserts that currently amended claim 57 is not anticipated by Abramson under 35 U.S.C. §102(b). According to M.P.E.P. §2131,

“a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference” *Verdgaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987), and “the identical invention must be shown in as complete detail as is contained in the claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226 (Fed. Cir. 1989).

Please consider currently amended claim 57 as follows:

57. An optical switch comprising:

a first electrode;

a second electrode located opposite said first electrode; and

a molecular system connected to said first electrode and connected to said second electrode, said first and second electrodes capable of generating an electric field, said molecular system providing two different colors based on two different oxidation states of at least one digital dye in said molecular system, said digital dye having an optical change resulting from an electrochemical oxidation/reduction reaction.

The Examiner asserts in the Office Action that the electro-optic display devices 400 and 600 of Abramson are equivalent to the optical switch described in currently amended claim 57. The electro-optic display devices 400 and 600 of Abramson can be used as pixels in an electronically operated display. In particular, the Examiner asserts that the redox chromophores 440 of the device 400, shown in Figure 4 of Abramson, and the redox chromophores 612 of the device 600, shown in Figure 6 of Abramson, are the same as the molecular system of currently amended claim 57. However, Abramson does not teach connecting the redox chromophores 440 and 612 to the first and second electrode equivalents of the devices 400 and 600 of Abramson. As shown in Figure 4 of Abramson, the conductive layer 420 and the conductive elements 460 and 470 are the equivalents of the first and second electrodes of currently amended claim 57. However, the redox chromophores 440 are not directly connected to the conductive layer 420 or the conductive elements 460 and 470. Instead, Figure 4 of Abramson reveals an electrolyte solution 450 placed between the redox chromophores 440 and the conductive elements 460 and 470. In addition, the redox chromophores 440 are connected to a semiconductor, titania nano-crystalline layer 430 and not the conductive layer 420. Again, as shown in Figure 6 of Abramson, the conductive layer 608 and the conductive elements 616 and 618 are the equivalents of the first and second electrodes of currently amended claim 57. However, the redox chromophores 612 are not directly connected to the conductive layer 608 or the conductive elements 616 and 618. Instead, Figure 6 of Abramson reveals a charge transfer layer 620 placed between the redox chromophores 612 and the conductive elements 616 and 618. In addition, the redox chromophores 612 are connected to the semiconductor, titania nano-crystalline layer 610 and not the conductive layer 608.

The electrolyte solution 450, the charge transfer layer 620, and the titania

layers 430 and 610 are essential components of the devices described in Abramson. In particular, every device described in Abramson includes either an electrolyte solution 450, 920, 1020, 1520 or a charge transfer layer 620 and 820 placed between the redox chromophores and the conductive elements. In addition, in every device described in Abramson, the redox chromophores are attached to a titania layer and not to the conductive layer. The electrolyte solutions, the charge transfer layers, and the titania layers are essential because they are used to increase the contrast between separate pixels or electro-optic display devices. Abramson describes the importance of these layers in col. 1, lines 22-24. In particular, Abramson describes the importance of the charge transfer layers in col. 22, lines 29-58; and describes the importance of including the titania layers in col. 11, lines 16-37; col. 18, lines 42-51; and col. 25, lines 55-60.

In contrast, currently amended claim 57 teaches “a molecular system connected to said first electrode and connected to said second electrode.” Therefore, claim 57 is not anticipated by Abramson under 35 U.S.C. §102(b).

***Response to Rejections under 35 U.S.C. §103(a)***

Applicant’s representative asserts that claims 15-19, 21, 27, 53, 54, and 59 are not unpatentable under 35 U.S.C. §103(a), because “in order [to] establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.” See M.P.E.P. §2143.03. In addition, “the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose.” See M.P.E.P. §2145.III.

With respect to claims 15-19, 21, 27, 53, 54, and 59, the Examiner asserts that devices of Abramson can be modified to include the compounds referenced in Fitzmaurice, Elliot, and Yamashita. In order to do so, the devices described by Abramson would have to be modified in accordance with currently amended claim 57. This would include either substantially or completely eliminating the electrolyte solution 450, the charge transfer layer 620, and the titania layers 430 and 610. As described above, these layers are integral to the operation of all the devices described in Abramson. Removing or diminishing these layers would at the least change the principle of operation

or render the devices inoperable for their intended purpose by diminishing the contrast in the light emitted by the devices.

Therefore, claim 57 is not obvious under 35 U.S.C. §103(a). Claims depending from claim 57 are also allowable due to depending from an allowable base claim and further in view of the additional limitations recited in the dependent claims.

In Applicant's representative's opinion, all of the claims remaining in the current application are clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

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